DETAILED ACTION

1. Applicant's response of 12/02/2009 has been entered and considered. Upon entering amendment, claims 31-37 and 43-48 have been amended; claim objections have been withdrawn.

Response to Arguments

2. Applicant's arguments filed 12/02/2009 have been fully considered but they are not persuasive for the reason discussed below.

3. The Examiner contacted the undersigned attorney on December 08, 2009 for purposed of further discussion to explain the Examiner's interpretation, as discussed below.

4. Applicant argues that Machida does not teach the substrate is being rectangular. It is the Examiner's position that

a. Machida illustrates the substrate (6) in fig. 6 is being rectangular (side view or cross-section of the substrate). Moreover, none of the drawing of current application shows the rectangular substrate except side view of substrate (G) (cross-section view) as shown in figs. 1 and 2.

b. Even though the claim recites a rectangular substrate, the Examiner applies broadest interpretation to the claim such that the cross-section view, i.e., rectangular shape, of the substrate read the claim limitation.

5. Applicant also argues that nothing in Machida suggests that the Figs. 15(d) and 15(e) are cross section. The Examiner respectfully disagrees because Machida

illustrates in Figs. 15(d) and 15(e) being plan view; however, the plan view still represents its cross-section view. Accordingly, Machida illustrates cross-section obtained with horizontal cut-through.

6. For the reasons discussed above, the rejections are maintained.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 31, 32, 34, 35, 43, 44, 46 and 47 are rejected under 35 U.S.C. 102(b) as being anticipated by Machida (US 4,848,536, "Machida").

9. **Regarding claims 31 and 32**, Machida discloses apparatus for transporting an electrically conductive wafer, the apparatus comprising: a plurality of rod-like electrodes (1-1 through 1-5) having shorter sides and longer sides (see reproduced figure below) and oriented along an electrostatic chuck in parallel to a substrate mounting surface (see fig. 6), wherein shorter sides of each of said rod-like electrodes are oriented toward outside the electrostatic chuck, and longer sides of each of the rod-like electrodes are parallel to longer sides of adjacent rod-like electrodes, wherein the substrate mounting surface and the rod-like electrodes are configured so that, when a rectangular substrate (element 6 in fig. 6) is mounted on the substrate mounting surface, the rod-like electrodes will be disposed along an edge portion of the rectangular substrate to be

treated so that one of said shorter sides of each of said rod-like electrodes extends in parallel to a longer side of said rectangular substrate (see fig. 6), and wherein said rod-like electrodes are configured to be connected to wiring so that said electrostatic chuck will be bi-pole type (see fig. 11).

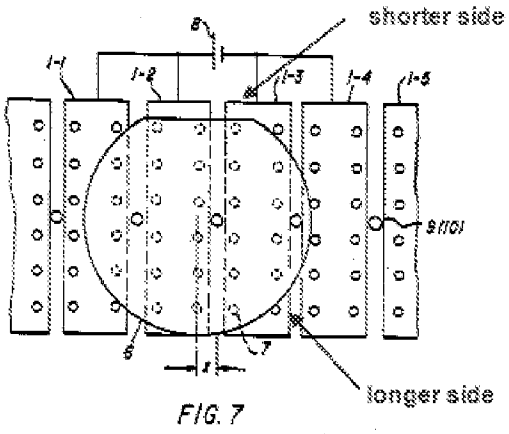

FIG. 7

10. **Regarding claim 34**, Machida discloses apparatus for transporting an electrically conductive wafer, the apparatus comprising: a plurality of rod-like electrodes (1-1 through 1-5) having shorter sides and longer sides (see reproduced figure above) and oriented along an electrostatic chuck in parallel to a substrate mounting surface (see fig. 6), wherein shorter sides of each of said rod-like electrodes are oriented toward outside the electrostatic chuck, and longer sides of each of the rod-like electrodes are parallel to longer sides of adjacent rod-like electrodes, wherein the substrate mounting surface and the rod-like electrodes are configured so that, when a rectangular substrate (element 6 in fig. 6) is mounted on the substrate mounting surface, the rod-like electrodes will be disposed along an edge portion of the rectangular substrate to be treated so that one of said shorter sides of each of said rod-like electrodes extends in parallel to a longer side of said rectangular substrate (see fig. 6), wherein the rod-like

electrodes are comprised of rod-like base material (51) (see fig. 13), wherein cross-sections of said rod-like base materials are in stepped shapes (see fig. 15e), and wherein said rod-like electrodes are arranged with a predetermined gap between adjacent rod-like electrodes (see figs. 7 and 11).

11. **Regarding claim 35**, Machida discloses apparatus for transporting an electrically conductive wafer, the apparatus comprising: a plurality of rod-like electrodes (1-1 through 1-5) having shorter sides and longer sides (see reproduced figure above) and oriented along an electrostatic chuck in parallel to a substrate mounting surface (see fig. 6), wherein shorter sides of each of said rod-like electrodes are oriented toward outside the electrostatic chuck, and longer sides of each of the rod-like electrodes are parallel to longer sides of adjacent rod-like electrodes, wherein the substrate mounting surface and the rod-like electrodes are configured so that, when a rectangular substrate (element 6 in fig. 6) is mounted on the substrate mounting surface, the rod-like electrodes will be disposed along an edge portion of the rectangular substrate to be treated so that one of said shorter sides of each of said rod-like electrodes extends in parallel to a longer side of said rectangular substrate (see fig. 6), wherein the rod-like electrodes are comprised of rod-like base material (51) (see fig. 13), and cross-sections of said rod-like base materials are arranged like roofing tiles (see fig. 15d), each having a curved convex portion on one side and a curved concave portion on the other side, and wherein each of said convex portions is arranged with predetermined gap (please note that figs. 15a-15e do not show a gap between the electrodes however in closed-up

view, there is a gap between two electrodes as shown in fig. 7) between said convex portion and said concave portion of an adjacent rod-like electrode.

12. **Regarding claims 43 and 44**, Machida discloses apparatus for transporting an electrically conductive wafer, the apparatus comprising: a plurality of rod-like electrodes (1-1 through 1-5) having shorter sides and longer sides (see reproduced figure above) and oriented along an rectangular substrate stage (see fig. 7), wherein shorter sides of each of said rod-like electrodes are oriented toward outside the rectangular substrate stage, and longer sides of each of the rod-like electrodes are parallel to longer sides of adjacent rod-like electrodes, and a rectangular substrate (element 6 in fig. 6) is subjected to be electrostatically attracted by the plurality of rod-like electrodes (col. 3, line 67 – col. 4, line 2), wherein the rectangular substrate stage and the rod-like electrodes are configured so that when the rectangular substrate is mounted on the rectangular substrate stage, the rod-like electrode will be disposed along an edge portion of the rectangular substrate to be treated so that one of the shorter sides of each of said rod-like electrodes extends in parallel to a longer side of said rectangular substrate (see fig. 6), and wherein said rod-like electrodes are configured to be connected to wiring so that said rod-like electrode will be bi-pole type (see fig. 11).

13. **Regarding claim 46**, Machida discloses apparatus for transporting an electrically conductive wafer, the apparatus comprising: a plurality of rod-like electrodes (1-1 through 1-5) having shorter sides and longer sides (see reproduced figure above) and oriented along an rectangular substrate stage (see fig. 7), wherein shorter sides of each of said rod-like electrodes are oriented toward outside the rectangular substrate stage,

and longer sides of each of the rod-like electrodes are parallel to longer sides of adjacent rod-like electrodes, and a rectangular substrate (element 6 in fig. 6) is subjected to be electrostatically attracted by the plurality of rod-like electrodes (col. 3, line 67 – col. 4, line 2), wherein the rectangular substrate stage and the rod-like electrodes are configured so that when the rectangular substrate is mounted on the rectangular substrate stage, the rod-like electrode will be disposed along an edge portion of the rectangular substrate to be treated so that one of the shorter sides of each of said rod-like electrodes extends in parallel to a longer side of said rectangular substrate (see fig. 6), wherein said rod-like electrodes are comprised of rod-like base materials (51) (see fig. 13), wherein cross-sections of said rod-like base materials are in stepped shapes (see fig. 15e), and wherein said rod-like electrodes are arranged with a predetermined gap between adjacent rod-like electrodes (see figs. 7 and 11).

14. **Regarding claim 47**, Machida discloses apparatus for transporting an electrically conductive wafer, the apparatus comprising: a plurality of rod-like electrodes (1-1 through 1-5) having shorter sides and longer sides (see reproduced figure above) and oriented along an rectangular substrate stage (see fig. 7), wherein shorter sides of each of said rod-like electrodes are oriented toward outside the rectangular substrate stage, and longer sides of each of the rod-like electrodes are parallel to longer sides of adjacent rod-like electrodes, and a rectangular substrate (element 6 in fig. 6) is subjected to be electrostatically attracted by the plurality of rod-like electrodes (col. 3, line 67 – col. 4, line 2), wherein the rectangular substrate stage and the rod-like electrodes are configured so that when the rectangular substrate is mounted on the

rectangular substrate stage, the rod-like electrode will be disposed along an edge portion of the rectangular substrate to be treated so that one of the shorter sides of each of said rod-like electrodes extends in parallel to a longer side of said rectangular substrate (see fig. 6), wherein said rod-like electrodes are comprised of rod-like base materials (51) (see fig. 13), wherein cross-sections of said rod-like base materials are arranged like roofing tiles (see fig. 15d), each having a curved convex portion on one side and a curved concave portion on the other side, and wherein each of said convex portions is arranged with predetermined gap (please note that figs. 15a-15e do not show a gap between the electrodes however in closed-up view, there is a gap between two electrodes as shown in fig. 7) between said convex portion and said concave portion of an adjacent rod-like electrode.

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

16. Claims 33, 37-41 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Machida in view of Motoaki (JP 62211363, "Motoaki").

17. **Regarding claim 33**, Machida discloses apparatus for transporting an electrically conductive wafer, the apparatus comprising: a plurality of rod-like electrodes (1-1 through 1-5) having shorter sides and longer sides (see reproduced figure above) and

oriented along an electrostatic chuck in parallel to a substrate mounting surface (see fig. 6), wherein shorter sides of each of said rod-like electrodes are oriented toward outside the electrostatic chuck, and longer sides of each of the rod-like electrodes are parallel to longer sides of adjacent rod-like electrodes, wherein the substrate mounting surface and the rod-like electrodes are configured so that, when a rectangular substrate (element 6 in fig. 6) is mounted on the substrate mounting surface, the rod-like electrodes will be disposed along an edge portion of the rectangular substrate to be treated so that one of said shorter sides of each of said rod-like electrodes extends in parallel to a longer side of said rectangular substrate (see fig. 6), wherein the rod-like electrodes are comprised of rod-like base material (51) (see fig. 13). Machida does not explicitly disclose thermally sprayed films including high-purity ceramics are formed on said rod-like base material. Motoaki discloses thermally sprayed films (32) including high-purity ceramics (metallic powder of Ti) are formed on an electrode (11). Motoaki teaches that ceramic coating layer provides excellent adhesive powder and corrosion resistance for base material (abstract). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to spray a ceramic material onto a base surface to provide a corrosion resistant base surface to protect the base material (abstract).

18. **Regarding claim 37**, Machida discloses apparatus for transporting an electrically conductive wafer, the apparatus comprising: a plurality of rod-like electrodes (1-1 through 1-5) having shorter sides and longer sides (see reproduced figure above) and oriented along an electrostatic chuck in parallel to a substrate mounting surface (see fig.

6), wherein shorter sides of each of said rod-like electrodes are oriented toward outside the electrostatic chuck, and longer sides of each of the rod-like electrodes are parallel to longer sides of adjacent rod-like electrodes, wherein the substrate mounting surface and the rod-like electrodes are configured so that, when a rectangular substrate (element 6 in fig. 6) is mounted on the substrate mounting surface, the rod-like electrodes will be disposed so that one of said shorter sides of each of said rod-like electrodes extends in parallel to a longer side of said rectangular substrate (see fig. 6), wherein the rod-like electrodes are comprised of rod-like base material (51) (see fig. 13). Machida does not explicitly disclose thermally sprayed films including high-purity ceramic that is formed on said rod-like base material. Motoaki discloses thermally sprayed films (32) including high-purity ceramics (metallic powder of Ti) are formed on an electrode (11). Motoaki teaches that ceramic coating layer provides excellent adhesive powder and corrosion resistance for base material (abstract). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to spray a ceramic material onto a base surface to provide a corrosion resistant base surface to protect the base material (abstract).

19. **Regarding claim 38**, Machida discloses cross-sections of said base materials are in rectangular shapes (see fig. 7).

20. **Regarding claim 39**, Machida discloses cross-sections of said base materials are in rectangular shapes with wider widths than lengths (elements 1-1 through 1-4 in fig. 6).

21. **Regarding claim 40**, Machida discloses cross-section of said base materials are in stepped shapes (see figs. 13 and 15e).

22. **Regarding claim 41**, Machida discloses cross-sections of said base materials are arranged like roofing tiles having a curved convex portion on one side and a curved concave portion on the other side (see fig. 15d).

23. **Regarding claim 45**, Machida discloses apparatus for transporting an electrically conductive wafer, the apparatus comprising: a plurality of rod-like electrodes (1-1 through 1-5) having shorter sides and longer sides (see reproduced figure above) and oriented along an rectangular substrate stage (see fig. 7), wherein shorter sides of each of said rod-like electrodes are oriented toward outside the rectangular substrate stage, and longer sides of each of the rod-like electrodes are parallel to longer sides of adjacent rod-like electrodes, and a rectangular substrate (element 6 in fig. 6) is subjected to be electrostatically attracted by the plurality of rod-like electrodes (col. 3, line 67 – col. 4, line 2), wherein the rectangular substrate stage and the rod-like electrodes are configured so that when the rectangular substrate is mounted on the rectangular substrate stage, the rod-like electrode will be disposed along an edge portion of the rectangular substrate to be treated so that one of the shorter sides of each of said rod-like electrodes extends in parallel to a longer side of said rectangular substrate (see fig. 6), wherein the rod-like electrodes are comprised of rod-like base material (51) (see fig. 13). Machida does not explicitly disclose thermally sprayed films including high-purity ceramic that is formed on said rod-like base material. Motoaki discloses thermally sprayed films (32) including high-purity ceramics (metallic powder of

Ti) are formed on an electrode (11). Motoaki teaches that ceramic coating layer provides excellent adhesive powder and corrosion resistance for base material (abstract). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to spray a ceramic material onto a base surface to provide a corrosion resistant base surface to protect the base material (abstract).

24. Claims 36 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Machida in view of Hiramatsu et al. (US 2003/0044653, "Hiramatsu").

25. **Regarding claim 36**, Machida discloses apparatus for transporting an electrically conductive wafer, the apparatus comprising: a plurality of rod-like electrodes (1-1 through 1-5) having shorter sides and longer sides (see reproduced figure above) and oriented along an electrostatic chuck in parallel to a substrate mounting surface (see fig. 6), wherein shorter sides of each of said rod-like electrodes are oriented toward outside the electrostatic chuck, and longer sides of each of the rod-like electrodes are parallel to longer sides of adjacent rod-like electrodes, wherein the substrate mounting surface and the rod-like electrodes are configured so that, when a rectangular substrate (element 6 in fig. 6) is mounted on the substrate mounting surface, the rod-like electrodes will be disposed along an edge portion of the rectangular substrate to be treated so that one of said shorter sides of each of said rod-like electrodes extends in parallel to a longer side of said rectangular substrate (see fig. 6), wherein the rod-like electrodes are comprised of rod-like base material (51) (see fig. 13). Machida does not explicitly disclose the rod-like base materials include high-purity isotropic graphite.

Hiramatsu teaches that an isotropic graphite material formed in a form disc to provide low thermal expansion ([0500]). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to choose material having low thermal expansion, such as isotropic graphite to limit the expansion of the chuck so that the ceramic coating does not crack.

26. **Regarding claim 48**, Machida discloses apparatus for transporting an electrically conductive wafer, the apparatus comprising: a plurality of rod-like electrodes (1-1 through 1-5) having shorter sides and longer sides (see reproduced figure above) and oriented along an rectangular substrate stage (see fig. 7), wherein shorter sides of each of said rod-like electrodes are oriented toward outside the rectangular substrate stage, and longer sides of each of the rod-like electrodes are parallel to longer sides of adjacent rod-like electrodes, and a rectangular substrate (element 6 in fig. 6) is subjected to be electrostatically attracted by the plurality of rod-like electrodes (col. 3, line 67 – col. 4, line 2), wherein the rectangular substrate stage and the rod-like electrodes are configured so that when the rectangular substrate is mounted on the rectangular substrate stage, the rod-like electrode will be disposed along an edge portion of the rectangular substrate to be treated so that one of the shorter sides of each of said rod-like electrodes extends in parallel to a longer side of said rectangular substrate (see fig. 6), wherein said rod-like electrodes are comprised of rod-like base materials (51) (see fig. 13). Machida does not explicitly disclose the rod-like base materials include high-purity isotropic graphite. Hiramatsu teaches that an isotropic graphite material formed in a form disc to provide low thermal expansion ([0500]). It

would have been obvious to one of ordinary skill in the art at the time of the invention was made to choose material having low thermal expansion, such as isotropic graphite to limit the expansion of the chuck so that the ceramic coating does not crack.

27. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Machida in view of Motoaki, and further in view of Hiramatsu.

28. **Regarding claim 42**, Machida and Motoaki disclose the limitations as discussed above. Neither Machida nor Motoaki discloses the base materials are comprised of high-purity isotropic graphite. Hiramatsu discloses that an isotropic graphite material formed in a form disc to provide low thermal expansion ([0500]). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to choose material having low thermal expansion, such as isotropic graphite to limit the expansion of the chuck so that the ceramic coating does not crack.

Conclusion

29. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TIEN MAI whose telephone number is 571-270-1277. The examiner can normally be reached on M-Th: 8:00-7:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jared Fureman can be reached on 571-272-2391. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

/Tien Mai/
Examiner, Art Unit 2836

12-8-09
/Stephen W Jackson/
Primary Examiner, Art Unit 2836